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DETAILED DESCRIPTION

[Detailed Description of the Invention]**[0001]**

[Field of the Invention]This invention provides an indicator, respectively in at least two or more function parts, for example, the image formation parts and image input parts by which unitization was carried out, and relates to image processing devices, such as a digital copier which displays the information about image processing by this indicator.

[0002]

[Description of the Prior Art]A document image is conventionally read electronically by the scanner part which is an image input part, After performing predetermined processing to this read electronic image data, light-scanning record is performed at the electro photography Records Department which is an image formation part, The image which performed this light-scanning record was developed, and there was a digital copier which is an image processing device which carries out transfer fixing of this developed image to a record paper, and carries out record reappearance of the picture.

[0003]Such a digital copier has a scanner part for reading a document image electronically and obtaining electronic image data, and a printer section which performs image formation in a record paper based on electronic image data, and the structure where the scanner part is arranged in one at the upper surface of the printer section is almost the case.

With such a structure, the indicator was provided only in the operation panel part on the upper surface of a device.

[0004]However, as shown in drawing 1, unitization of the scanner part 10 and the printer section 20 is carried out independently, The scanner part 10 is allocated and constituted above the printer section 20, and the digital copier with which the scanner side indicator 11 and the printer side indicator 21 were formed in these scanner parts 10 and printer sections 20,

respectively is proposed.

[0005]Thus, in the digital copier which equipped each of the scanner part 10 and the printer section 20 with the scanner side indicator 11 and the printer side indicator 21, the information about image processing was displayed on both the scanner side indicator 11 and the printer side indicator 21.

[0006]For this reason, the user (user) can operate it, looking at the scanner side indicator 11 of the scanner part 10 at the time of normal operation which is stood and operated, It can process looking at the printer side indicator 21 of the printer section 20 which exists caudad at the time of operation which squats down like at the time of jam processing, and is processed.

Therefore, in any case, the screen of the indicator was in the legible state.

[0007]

[Problem(s) to be Solved by the Invention]However, since all the information is displayed in the above-mentioned composition on both the scanner side indicator 11 and the printer side indicator 21, There was a problem that it was unclear whether it is the information on image processing concerning [whether it is the information on image processing about the scanner part 10 and] the printer section 20, and it gave confusion to a user.

[0008]Namely, the scanner part 10 and the printer section 20 in the digital copier by which unitization was carried out, respectively. Usually, since image processing of separate image data which is different by each of the scanner part 10 and the printer section 20 is possible, While the user was looking at the scanner side indicator 11, the information about operation of the printer section 20 had become the cause of being displayed on the scanner side indicator 11, or producing confusion to a user when [that] reverse. Such a problem especially becomes more remarkable in the digital copier with which the facsimile function and the printer function were unified.

[0009]

[Means for Solving the Problem]This invention is provided with the following in order to solve the above-mentioned problem.

A status management means to manage the state about each image processing in the above-mentioned function part in an image processing device provided with an indicator which has the function part by which unitization was carried out to at least two or more, and as which each function part displays information about image processing, respectively.

A control means controlled according to a state of each function part managed by the above-mentioned status management means to display information about image processing on which indicator of the above-mentioned function parts.

[0010]A function part of this invention has provided the 2nd indicator in a described image formation part while it consists of an image input part which reads a manuscript by which

unitization was carried out and obtains image data, and an image formation part which forms a picture on a record paper based on image data and provides the 1st indicator in a described image input part.

[0011]While it being parallel and performing image processing to picture information different, respectively from an image input part and an image formation part is formed possible, this invention, An image input part is allocated above an image formation part, and a control means is controlled to display information about picture information in an image input part on the 1st indicator regardless of a state of an image formation part.

[0012]While it being parallel and performing image processing to picture information different, respectively from an image input part and an image formation part is formed possible, this invention, An image input part is allocated above an image formation part, and the above-mentioned control means is controlled to make it display on the 1st indicator, only when an image input part is not performing image processing [as opposed to other picture information for the state about image processing in an image formation part].

[0013]While it being parallel and performing image processing to picture information different, respectively from an image input part and an image formation part is formed possible, this invention, Allocate an image input part above an image formation part, establish an existence verifying means which checks existence of a user who inputted picture information processed in an image input part or an image formation part now, and a control means, It controls to display information about image processing performed to the 1st indicator of the above now, when a user's existence is checked by the above-mentioned existence verifying means.

[0014]While it being parallel and performing image processing to picture information different, respectively from an image input part and an image formation part is formed possible, this invention, An image input part is allocated above an image formation part, and after displaying information about image processing on the 1st indicator, an account control means will be controlled to display the above-mentioned information on the 2nd indicator, if a user operates an image formation part.

[0015]While it being parallel and performing image processing to picture information different, respectively from an image input part and an image formation part is formed possible, this invention, An image input part is allocated above an image formation part, and a control means controls the 2nd indicator in the non-actuation state, when displaying information about image processing on the 1st indicator, and an image formation part is not performing image processing to other picture information.

[0016]

[Embodiment of the Invention]One embodiment of the digital copier which is an image processing device of this invention is described with drawing 1 thru/or drawing 12.

[0017]The scanner part 10 for each to read electronically the document image by which

unitization was carried out, and for this digital copier 1 obtain electronic image data, It has the printer section 20 which performs image formation in a record paper based on electronic image data, and between the upper surfaces of the printer section 20 concerned, it has a gap, and the scanner part 10 is supported above the printer section 20 by the support member 31, and it is allocating in it.

[0018]The scanner side indicator 11 is formed in the operation panel part 12 of this scanner part 10, and the information about image processing is displayed by this scanner side indicator 11. The automatic manuscript conveying machine (ADF) 13 which conveys the manuscript which reads to a manuscript stand automatically is formed in the upper surface of the scanner part 10, enabling free opening and closing.

[0019]While the printer side indicator 21 is formed in the upper surface of the above-mentioned printer section 20, the delivery tray 22 in which paper is delivered to the record paper by which image formation was carried out is formed, and the information about image processing is displayed by this printer side indicator 21.

[0020]And the feeding part 33 with the sheet paper cassette 32 which accommodates the record paper fed to the lower part of the printer section 20 at the printer section 20 is allocated.

[0021]As the digital copier 1 constituted [above-mentioned] is shown in drawing 2, network connection of the personal computer 2 which are two or more external instruments, the digital camera 3, the digital camcorder 4, and the personal digital assistant device 5 grade is carried out.

[0022]From an image recording section, record reappearance is carried out as a picture and the image data transmitted via an interface from this external instrument by which network connection was carried out is outputted, once it is sent to the image processing portion of the digital copier 1 and predetermined processing is performed.

[0023]Next, in this digital copier 1, the composition and the function of an image processing portion to perform image processing to the read manuscript picture information are explained.

[0024]Drawing 3 is the whole various-units part, image processing portion, block lineblock diagram which constitutes the above-mentioned digital copier 1, The state where operation management is carried out is shown taking cooperation with the sub central processing unit (CPU) 101 carried for every unit part by the main central processing unit (CPU) 401 located in an approximately center.

[0025]The operation panel board 100 which the digital copier 1 is large and carries out supervisory control of the operation panel part as shown in this drawing 3, The machine-control board 200 which carries out supervisory control of each unit which constitutes the digital copier 1, The CCD board 300 which reads a manuscript picture electrically and is used as electronic data, The main image processing board 400 which performs predetermined

image processing to the manuscript picture electronic-data-ized on the CCD board 300, The sub image processing board 500 which performs further predetermined image processing to the picture information processed with this main image processing board 400, It comprises the add-in board group 600 (a printer board, a FAX board, an expansion board) etc. of others which were connected to the sub image processing board 500 via the interface.

[0026]Hereafter, the contents which are carrying out supervisory control for every board are explained.

[0027](Operation panel board 100) The operation panel board 100, LCD display 104-1 (scanner side indicator 11) which is fundamentally controlled by the sub central processing unit 101, and has been arranged on the navigational panel 103-1 of the scanner part 10, and the navigational panel 103-2 of the printer section 20, The operational input from operation key group 105-1,105-2 which inputs the directions about the display screen of 104-2 (printer side indicator 21) and the various modes, etc. are managed. And the memory 102 which memorizes various control information in a navigational panel, such as information displayed on the data inputted from the operation key group 105 and a LCD screen, is formed.

[0028]By this composition, the sub central processing unit 101 performs data communications, such as control data with the main central processing unit 401, and performs directions of the digital copier 1 of operation.

[0029]From the main central processing unit 401. The operating state in what kind of state a device is through LCD screen 104-1,104-2 of the navigational panel 103 to an operator now by transmitting the control signal etc. which show the operating state of the digital copier 1 to the sub central processing unit 101 is displayed.

[0030](Machine-control board 200) The machine-control board 200, The whole is controlled by the sub central processing unit 201, and The automatic draft feeders 203 (automatic manuscript conveying machine 13), such as ADF and RADF, The reading scanner part 204 (scanner part 10) for reading a manuscript picture, The process part 205 (printer section 20) for reproducing picture information as a picture, The feed transportation part 206 which conveys from a stowage the paper with which a picture is recorded one by one toward a process part, The finisher 208 etc. which perform post-processing, such as a staple, to the double-sided unit 207 which carries out inverted transportation of the paper so that the paper with which the picture was recorded may be reversed and a picture may be formed in both sides of a paper, and the paper with which the picture was recorded are managed.

[0031](CCD board 300) The CCD board 300, The circuit (CCD gate array) 302 which drives CCD301 and CCD301 for reading a manuscript picture electrically, The analog circuitry 303 which performs the gain adjustment etc. of the analog data outputted from CCD301, It comprises A/D converter 304 etc. which change the analog signal of CCD301 into a digital signal, and are outputted as electronic data, and control management is performed by the

main central processing unit 401.

[0032](Main image processing board 400) The main image processing board 400, So that it may be controlled by the main central processing unit 401 and can express in the state of a request of the story tonality of a picture based on the electronic data of a manuscript picture sent from said CCD board 300, The multi valued image treating part 402 which processes with the state of the image data of multiple values, such as a shading compensation, density correction, area separation, filtering, MTF correction, definition conversion, electronic zoom (variable power processing), and a gamma correction, In order to reproduce a picture by the memory 403 which memorizes various control information, such as procedure management of the image data or processing in which processing was performed, and the picture information to which processing was performed, it comprises the laser control 404 etc. which carry out transfer control of the data to the laser writing unit 46 side.

[0033](Sub image processing board 500) The sub image processing board 500, The binary format image treating part 501 which the connector joint was carried out to the main image processing board 400, and was controlled by the main central processing unit 401 on the main image processing board 400, The gate array 502 which controls the memory and memory which carry out storage and file management of the binary format image information to which image processing was performed, or the control information on processing, The gate array 503 which controls the hard disk and hard disk for carrying out storage and file management of the manuscript picture information of two or more sheets, repeating the manuscript picture of two or more sheets, reading only the number of the numbers of desired parts, and generating two or more copies, It comprises the gate array 504 etc. which control SCSI and SCSI as an external interface.

[0034]The treating part from which the above-mentioned binary format image treating part 501 changes multi valued image information into binary format image information, It comprised a treating part turning around a picture, a binary variable power (zoom) treating part which performs variable power processing of a binary format image, etc., and it also has the fax interface so that a fax picture can be further transmitted and received via a means of communication.

[0035](Add-in board 600) As the add-in board 600, The printer board 601 for enabling the output of the data sent from a personal computer etc. as a printer mode from the printer section 20 of a digital copier, The expansion board 602 for extending the edit function of a digital copier and using the feature of a digital copier effectively, There are the facsimile board 603 etc. which make it possible to transmit the manuscript picture read in the scanner part 10 of a digital copier to the partner point, or to output the picture information sent from the partner point from the printer section 20 of a digital copier.

[0036]Operation of the scanner part 10 and the printer section 20 to which unitization of the

digital copier 1 was carried out is controlled by such composition to be shown in drawing 1, and the display control at the time of each operation of the digital copier 1 is explained below. [0037](at the time of scanner part 10 operation) In a user's making the read processing of a manuscript perform in the scanner part 10 or performing jam processing of the manuscript carrying jam in the manuscript automatic transferring machine (ADF) 13, The information about the scanner part 10, including manuscript reading situation display, the guide display of a jam processing procedure, etc., is always displayed on the scanner side indicator 11 of the scanner part 10.

[0038]For example, when manuscript reading operation is performed in the scanner part 10, the display screen which shows under manuscript reading as shown in drawing 4 is displayed on the scanner side indicator 11 of the scanner part 10.

[0039]When the manuscript carrying jam in the manuscript automatic transferring machine 13 arises, a display screen as shown in drawing 5 is displayed on the scanner side indicator 11.

[0040]These displays are always displayed on the scanner side indicator 11 regardless of the operating state of the printer section 20, as shown in drawing 6 (in drawing 6, the case where the state of the scanner part 10 is a jammed state of the manuscript automatic transferring machine 13 is illustrated.).

[0041]It aims at giving display information certainly to a user by displaying using the scanner side indicator 11 in a legible position by a user, when this, i.e., a user, is performing the processing and operation about the scanner part 10.

[0042]The information concerning the scanner part 10 at this time, If it is made not to display on the printer side indicator 21 of the printer section 20, Even if it is a case where there is a user who is operating the printer section 20, when there is no user who does not cause a user's confusion and is operating the printer section 20, power consumption can be stopped by changing the printer side indicator 21 into a non-actuation state.

[0043](at the time of printer section 20 operation) the display screen under copy operation as the printer section 20 set working and shown in drawing 7 thru/or drawing 9, and a printer -- a working display screen or the display screen of the carrying jam of a record paper is displayed.

[0044]These display screens are displayed on the scanner side indicator 11, when there is no presenting of the information the scanner part 10 side is waiting and concerning the scanner part 10, as shown in drawing 10 (in drawing 10, the case where the state of the printer section 20 is in a paper jam state is illustrated.).

[0045]At this time, power consumption can be stopped by changing the printer side indicator 21 of the printer section 20 into a non-actuation state.

[0046]For this reason, even if the information displayed is information about the printer section 20, display information can be certainly given to a user by carrying out using the scanner side

indicator 11 in a legible position by a user.

[0047]However, when reading operation of the manuscript, etc. are performed in the scanner part 10 at this time, the information about the scanner part 10 is preferentially displayed on the scanner side indicator 11, and the information about the above printer sections is displayed on the printer side indicator 21.

[0048]If a trouble occurs in the printer section 20 as shown in the flow chart of drawing 11, this operation, It judges whether the scanner part 10 is working (S1), and when the scanner part 10 is not working, the contents of a trouble of the printer section 20 are displayed on the scanner side indicator 11 of the scanner part 10 (S2). If it judges that the scanner part 10 is working by S1, the contents of a trouble of the printer section 20 will be displayed on the printer side indicator 21 of the printer section 20 (S3).

[0049]And dissolution of the trouble of the printer section 20 will reset the display of the message of (S4), the scanner side indicator 11, or the printer side indicator 21 (S5).

[0050]If the scanner part 10 is waiting when jam, such as a paper jam, arises in the printer section 20 side according to the above, the alarm display screen (drawing 9) of jam will be displayed on the scanner side indicator 11.

[0051]However, when a user starts jam processing by this display, the display of the scanner side indicator 11 is changed into the printer side indicator 21 by operations (for example, in order to perform jam processing, the panel of the surface of the digital copier 1 is opened) to a user's printer section 20.

[0052]It takes action to see a guide display also in the operation (work) which this performs by a user squatting down, and it becomes unnecessary to look into the scanner side indicator 11.

[0053]In order that the input person of picture information who is processing now may check output processing conditions at the time of a printer mode, for example, when a digital copier is approached, If an input person's approach is detected, the existence is checked and the scanner part 10 is waiting as shown in drawing 12, the display about described image information will be displayed on the scanner side indicator 11.

[0054]At this time, the network to which the above-mentioned digital copier 1 is connected is used within [in a company etc.] the existing specific group, for example, and the user who is that constituent has an ID number peculiar to each.

[0055]When the demand of image printing is advanced from external instruments, such as a personal computer connected to the digital copier at this, the ID number of the user by whom this image data advanced the printing request is added as information.

[0056]And if each user is carrying the ID card in which its own ID number was recorded, this ID card is formed between the digital copiers 1 so that radio is possible, and a user goes into prescribed distance within the limits of the digital copier 1, The digital copier 1 reads the ID number by communication with the ID card which the user is carrying.

[0057]Thereby, the digital copier 1 can detect an input person's approach, when the input person of picture information approaches the digital copier 1. Since detection of such an input person's approach is publicly known art as indicated to JP,5-273338,A, the details are omitted.

[0058]Although the above-mentioned printer side indicator 21 is made into the same display style as the scanner side indicator 11 in the above-mentioned embodiment, the printer side indicator 21 is formed small and it may be made to perform only a MESEJI display.

[0059]

[Effect of the Invention]Since the invention according to claim 1 displays the information about image processing on which indicator of each function part according to the state of at least two or more function parts managed by a status management means, The information about image processing of each function part can be intelligibly displayed on an indicator, and the visibility of an image-processing state of each function part can be raised.

[0060]The image input part which the invention according to claim 2 reads the manuscript by which unitization was carried out, and obtains image data, The information about image processing with the image formation part which forms a picture on a record paper based on image data can be intelligibly displayed using the 1st indicator and the 2nd indicator, Visibility can be raised while being able to check the image-processing state of an image input part and an image formation part correctly and easily.

[0061]That the invention according to claim 3 is parallel, and performs image processing to picture information different, respectively the information about the picture information in the image input part of the image input part and image formation part which were formed possible, Since it is displaying on the 1st indicator of the image input part allocated in the upper part of an image formation part regardless of the state of an image formation part, While being able to carry out looking at the information displayed on the 1st indicator at the time of the work of exchange of the manuscript read by an image input part etc. and being able to check the information about each image processing correctly and easily, it can improve and, moreover, workability can also raise visibility.

[0062]That the invention according to claim 4 is parallel, and performs image processing to picture information different, respectively the information about the picture information in the image input part of the image input part and image formation part which were formed possible, Visibility can be raised while being able to check the information about image processing to a user correctly and easily, since it is displaying on the 1st indicator located up from the 2nd indicator only when the image input part is not performing image processing to other picture information.

[0063]The invention according to claim 5 checks existence of the user who inputted the picture information processed in an image input part or an image formation part now, Visibility can be

raised while being able to check the information about image processing to a user correctly and easily, since the information about image processing performed now is displayed on the 1st indicator located up from the 2nd indicator.

[0064] Since the invention according to claim 6 will display the above-mentioned information on the 2nd indicator if a user operates an image formation part after displaying the information about image processing on the 1st indicator, Visibility can be raised while being able to perform display information correctly and easily with the present posture, without looking into the 1st high indicator of a position, even if it is a case where a user's posture becomes low, in order to cancel the jam produced in the image formation part, for example for operation of an image formation part.

[0065] Since the invention according to claim 7 is controlling the 2nd indicator in the non-actuation state when the image formation part is not performing image processing to other picture information when displaying the information about image processing on the 1st indicator, While being able to perform the display by the 1st indicator that visual recognition by a user tends to perform and being able to check the information about image processing correctly and easily, the power consumption by the 2nd indicator can be held down.

[Translation done.]